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THE HOME OF THE GREAT CREST.

BY IRA N. GABRIELSON.

The Great Crested Flycatcher (*Myiarchus crinitus*) has been practically an unknown bird to me. I saw it during the migrations and for two years knew that a pair was nesting in the tops of a grove of giant cottonwoods. There was, however, little opportunity to learn anything regarding their home life as the dense foliage and undergrowth effectually screened them from view. Imagine then my feelings when a small boy, who lived in the outskirts of the town, stopped me with the following remark (I give his statement verbatim): "There's a bird got a nest in a hole in an old dead tree down in our pasture and its got a brown back and yellow belly and an awful noise." I was interested at once and accompanied my small informant to the tree. As we approached a Great Crest left the hole in the trunk and flew to a neighboring tree.

The nest tree was the remains of an old basswood, a stump perhaps ten feet in height, with a circle of dead branches around the top. The tree was situated in a small glade, and the parents commanded a fine view in all directions. The nest was in a cavity about eight inches deep, and about six feet from the ground. It was lined with feathers, grass, and string, but I missed the traditional snake skin. However,

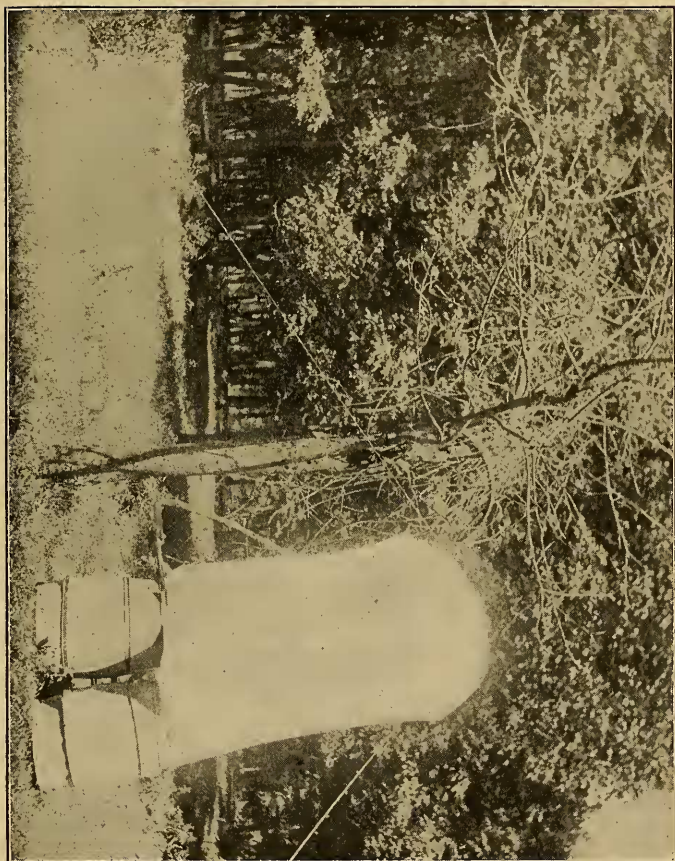
while I was examining the nest my companion volunteered the information that when he found the nest there was an old snake skin hanging from the hole, and that he had pulled it out for fear it would frighten the old birds. On June 29, when I first saw it, the nest contained six eggs.

On July 1, at 7:30 p. m., I visited the nest and found four eggs hatched and the fifth one pipped. On the second, I erected a blind at the nest and camped near by. From this time until July 13, my wife and I spent as much time as possible watching these birds.

The flycatchers were very timid and the blind had to be brought slowly toward the nest. For this reason, it was not until July 5 that it was close enough to make profitable a study of the feeding habits. However, some time was spent in watching on July 2, 3 and 4, and we found that food was usually visible in the beak, although at the distance we were then working we could not accurately determine its nature. On the morning of July 5 the blind was moved to within five feet of the nest and we could readily identify the morsels brought. There were five nestlings, as the sixth egg never hatched. It was removed sometime during July 2.

Beginning the morning of July 5, 42 hours were spent in the blind and about one-half as much time was spent under the trees near by watching the feeding habits of the parents. Some time was spent in the blind each day, with the exception of the tenth, when we were called back to town. Of the 42 hours 12 were on July 7, when we watched from 5:00 a. m. until 7 p. m. The remaining time was scattered through the other six days. No time was spent in the blind on July 13, as some one very considerably stole our blind during the previous night and the birds left the nest before we could get another one ready. We watched for about two hours from a distance of from thirty to forty feet with glasses, but found it very unsatisfactory.

The parent birds looked much alike, but we had one excellent field mark. The male (presumably) had every tail feather perfect, while in that of the female the feathers were



The blind in place at the Great Crest nest.

broken and worn and had many of the barbs missing altogether. We supposed this to be due to the rubbing against the nest walls during incubation. The condition of the two tails is well shown in the photographs, Fig. 2 being of the male and Fig 3 of the female.

METHODS OF HUNTING.

Recalling their usual noisy manners, I rather expected them to make more noise about the nest than some of the other birds studied. On the contrary, they proved to be the least noisy of any of the passerine birds yet studied.

In hunting they spent a large percent of their time on certain low hanging branches in the neighboring trees. The male preferred one in a large honey locust, where he sat well in toward the trunk. The female chose similar branches in an ash and two box elders. One of the parents was invariably on one of these perches, from which he or she could watch the nest. Only occasionally did one of them select a conspicuous perch. When they did so it was either in the top of the nest tree or the topmost branches of a prostrate trunk near by.

The different methods of securing food were interesting and a short account of them follows. The data were obtained by watching from the blind and also from the surrounding timber with the aid of a pair of field glasses.

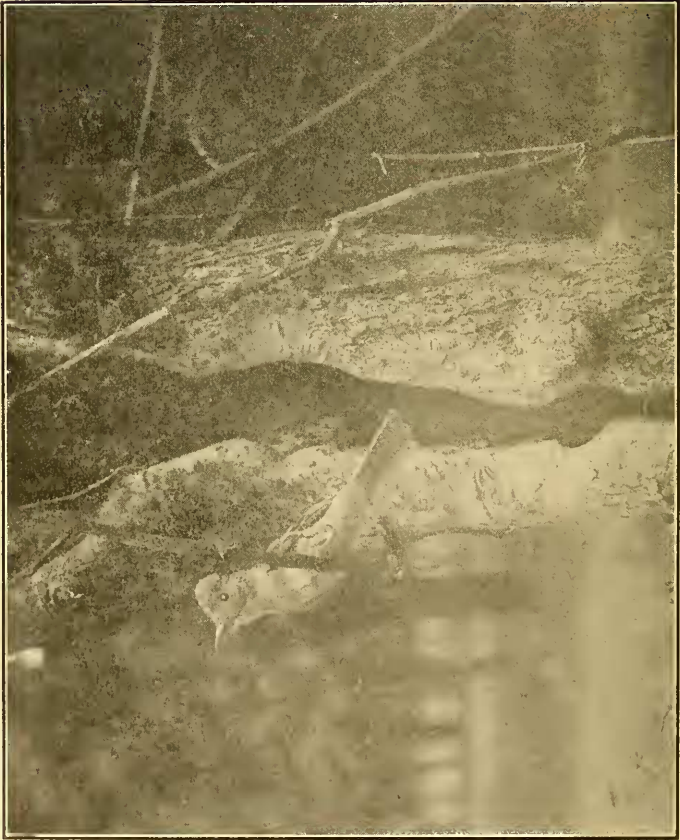
The greatest variety of food was secured in true flycatcher fashion, i.e., by watching for passing insects and darting after them from the chosen perch. After deducting the 109 unknown morsels of food, we have 307 fed which were identified. Thirty-one per cent¹ of these 307 morsels were taken on the wing and included flies, moths, mayflies, lady beetles, butterflies, wasps, dragonflies, and bees. We actually saw

¹ This figure and following per cent are based on the supposition that all of the individuals of the forms included as captured by these methods were taken only in the one way. Thus there may be some error, for the reason that we did not see all of the food secured.

some of each of these forms taken on the wing and their manner of life makes it probable that the majority of them were taken in this way. Some of these if not captured in the first dash, were not pursued further, but others, notably butterflies and moths, were followed until secured. Once a large bald-faced hornet came into the blind and succeeded in getting out just as the female came from the nest and alighted on a branch. She made a dash and captured him before he was fairly started. Flies, dragon flies, and bees were, as far as we observed, caught in very short dashes. The only lady beetle taken under our observation was one which had been crawling about on the bark of the nest-tree and which was captured as it flew away.

The second method was somewhat different, although the insects were still taken while the flycatchers were on the wing. This method was to hang on rapidly beating wings before a leaf or branch and pick insects from it. They were observed to secure larvæ, daddy-longlegs, long-horned grasshoppers, and some spiders in this way. Some of the spiders were found to be taken by the third method. Excluding spiders, the other forms which were observed to be taken only in this manner, total 103, or about 33% of the identified food. Some of the daddy-longlegs were picked from the outside wall of the blind.

The third method was a variation of the first. The Great Crests sat on a low branch until they saw an insect in the grass, when they would drop to the ground and secure it. (This does not include those picked from the grass without alighting.) Crickets, grasshoppers, beetles, and spiders were observed to be taken in this way. When they missed the insect, they never hopped or ran along the ground, but rose into the air and dove down into the grass again. One watched catching a grasshopper near the foot of the nest tree went through this performance several times before the prey was finally secured. Probably most of the three forms were taken by this method while spiders were also taken by the second.



The male on guard on his favorite perch. Note the perfect condition of the tail.

APPROACH TO THE NEST.

The study of these birds was made more difficult because of their silent approach to the nest. Other species previously studied made more or less noise in coming to the nest, but the Great Crests flew silently to some branch and then, after looking about, dropped to the nest opening and disappeared within. During the entire proceeding the only sound audible in the blind was the faint scratching of their nails as they entered the nest, and then it was too late to determine the contents of their beaks. This explains the large percentage of unidentified food in the table. Only by keeping a close watch on the three or four usual perches could one be sure of detecting their approach. They usually sat on these limbs for several seconds before entering the nest and could be held there for some time by a slight noise from the blind.

The female almost invariably came to the same branch and flew back to it on leaving the nest, but the male was more variable and had several perches, which he used according to the direction of his approach.

TABLE I. FOOD OF THE NESTLINGS.

FOOD.	J.4	J.5	J.6	J.7	J.8	J.9	J.11	J.12	To.
Fly	2	.	2	5	4	2	.	.	15
Moth	1	5	10	7	2	.	1	3	29
Green larvæ	16	17	25	23	5	.	2	88
Unidentified	15	19	24	16	14	5	16	109
Wasp	1	1	2	3	3	2	.	12
Long-horned Grasshopper.....	.	2	2	3	6	3	2	.	18
Dragon fly	2	3	3	2	1	.	.	11
Red Admiral butterfly.....	.	1	3	3	.	5	1	.	13
Lady beetle	2	1	.	.	.	.	.	3
Beetle	2	7	6	1	1	.	.	17
Daddy-longlegs	1	3	3	.	.	.	.	7
Grasshopper	1	7	18	5	.	.	3	34
Spider	5	18	5	.	.	.	28
Cricket	2	4	3	.	.	.	9
Egg shell (?).....	.	.	.	2	1	3	3	.	9
Butterfly	1	1	2	.	.	4
Bee	4	1	.	1	.	6
Mayfly	2	1	1	.	.	.	.	4
Total.....	3	50	83	129	73	39	15	24	416

There were numerous species of flies in the undergrowth and trees and we were unable to determine definitely the species fed. We thought several times that we recognized robber flies, and once or twice saw the parents hunting among the cattle, around which the stable flies swarmed. The majority of the moths were small, dull colored forms, which we could not identify. Once or twice a large black species was brought, and once a medium-sized underwing (*Catocala sp?*) was given to the nestlings. Geometrid larvæ furnished the bulk of the larval forms, but many were fed which were clearly different, and yet they could not be named. The only wasp definitely referred to any species was the bald-faced hornet (*Vespa maculata*), caught as it flew from the blind. Only the individuals recognized as long-horned grasshoppers were placed under that head, all others being entered as grasshoppers. The red admiral (*Pyrameis atlanta*) was very common and seemed to be easily captured by the Great Crests. The other four butterflies were fritillaries (*Argynnis sp?*).

We were almost positive that on several occasions the nestlings were fed pieces of egg shell. Once while the blind was within three feet of the nest a piece at least one-half inch square was brought. It was broken and cracked and the shell membrane (?) could be seen holding the parts together. I suspected that this substance was egg shell and asked my wife (without telling her what I thought) if she had noticed it. She replied that she had seen it fed, but could not determine its nature. A day or two later she remarked that she had identified it and stated that it was egg shell. Whether the identification was correct or not, there was plenty of opportunity for the birds to obtain the shells, as two camps and the remains of innumerable picnics were near the nest.

FOOD, ACTIONS AND FATE OF THE NESTLINGS.

As the nestlings were in the nest cavity and not visible from the blind we could not determine the distribution of the food to them. The striking thing in the feeding, at least

to us, was the large percentage of larvæ fed. They comprised the largest single item of food, being 21.15% of the total. Grasshoppers under two heads in the tables, were 12.50%; spiders, 6.73%; moths, 6.97%; unidentified, 26.20%; red admirals, 3.12%; flies, 3.60%; beetles, 4.08%; hymenoptera (bees and wasps), 4.32%; and the remainder, 11.30%, were miscellaneous insects.

Although we did not keep continuous watch at the nest, we spent some time each day from the time of hatching until the departure of the young, except on the tenth. From the second to the fourth we were still too far away to determine the nature of the food, but we could see it projecting from the beak on almost every visit. We saw no evidence of regurgitation either here or at a phoebe's nest, which we watched for a few hours.

During the study we saw the parents carry away the excreta 41 times and devour it only once. Much of it was undoubtedly removed during our absence from the blind, but there must have been much of it devoured while the birds were concealed from our view in the nest.

The nestlings were very noisy and restless. They kept up a constant peeping from the first day. On July 7 one or more of them began to utter a loud clear call or whistle, "*twee-eeet*," which was occasionally answered by the parents from a distance. From this time we could hear the parents whistling while far away from the nest, but for the most part they remained as silent as ever.

On July 8 the nestlings began to climb restlessly about in the nest. We had cut the edge down a little in order to obtain a better view and there was a large natural crack to the bottom of the nest. They crawled part way up the sides of the cavity and fell back to the bottom again. On the morning of July 9 we found only three nestlings in the nest. A search revealed one dead at the foot of the tree; but the fifth was never found, although we hunted for yards around in the short grass. Several times on July 9 they fell out of the nest

and started away through the grass. Fig. 4 was taken at this time to show the feather development. Whatever the cause of this action they quieted down after July 10 and remained in the nest until July 14. Fig. 9 was taken on the afternoon of July 13 and they were gone the next morning at 7:00. At this time they were very active and, after trying for an



The female at the entrance to the nest. Compare the condition of the tail with that of Fig. 2.

hour to get them to perch on a branch, we posed them on the hand. The one on the left was not able to fly well, but the other two had gained good control of their wings.

As the nestlings were hatched on the evening of July 1 and left either late July 13 or early July 14, they were twelve or thirteen days old at the time of departure.

MISCELLANEOUS ACTIONS OF THE PARENTS.

There was a certain dignity about every action of the parents which could not fail to impress the observer. They never made any outcry as we approached the nest, but flew silently away, often no farther than the other side of the nest tree, and remained watching us. Even when the blind was erected there was no apparent excitement, but only a careful watch kept on it until they decided to accept its presence. This was in decided contrast to the actions of such birds as the Catbird and Red-winged Blackbird, which have the habit of arousing the entire neighborhood when a blind is erected at their nests.

When the nestlings were taken out of the nest on July 13 they made a great fuss and the parents answered them for a few moments. This noise soon ceased and the adults, particularly the female, made a desperate attack on our party, flying about our heads and at our faces. Finally, even this stopped, and the female alighted on a branch about fifteen feet away and kept silent watch of the proceedings.

We were much interested in the feeding of the nestlings while they were on the ground. On the afternoon of July 9 all three of them were out of the nest and the parents fed them repeatedly. Here we again notice that the adults never hopped or walked, but after feeding one flew to the next one, even if it was only a few inches away. After the young were placed back in the nest, both parents often flew into the grass in search of them.

The calls were few in number. We occasionally heard the usual whistle, sometimes given loud and clear, and at other times barely audible in the blind. The only other sound which we heard from them was a series of low notes used in the early part of the nestling period to get the nestlings to open their mouths. It is impossible for me to describe it, but it somewhat resembled the noise produced by drawing a rusty nail from a board.

When angry the Great Crest elevated his crest, and when

in pursuit of other birds snapped his mandibles together loudly and rapidly.

On some occasions the food given the nestling was too large for it to swallow. When this happened the parent removed the morsel and quickly crushed it by snapping the mandibles together on it.

The parents never entered the nest together. Several times the female was at the nest opening when the male appeared on a limb above her. As he started to drop to the nest open-

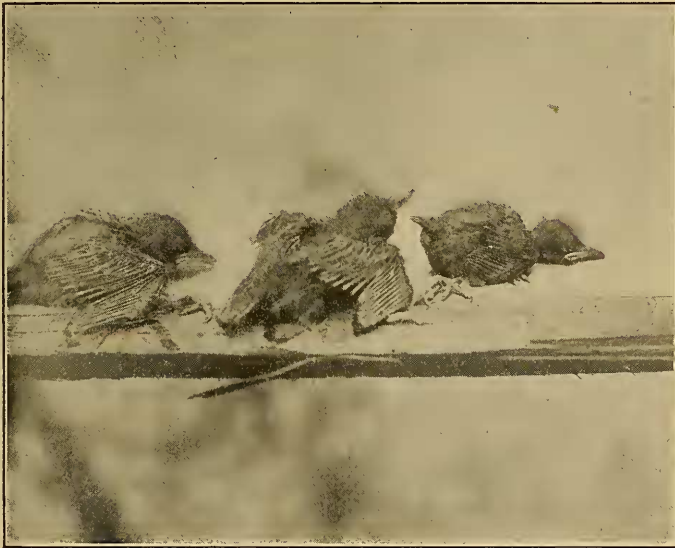


The nestlings at the age of 8 days, showing the development of the wing quills at this time.

ing she flew away, allowed him to feed the nestlings, and returned to feed her morsel when he left. Once she was in the nest feeding when he appeared on the edge. He put his head into the opening and "screached," at which she darted out and permitted him to enter.

The old rotten tree seemed to furnish a strong attraction to the woodpeckers and chickadees on account of the many larvæ under the bark. A Chickadee, Downy Woodpecker,

Red-headed Woodpecker, and Flicker came to the tree at various times. The woodpeckers were driven away by the Great Crests, but they paid no attention to the Chickadee. The Downy and Red-head tried the trick so often practiced by the Red-heads on the Kingbirds, when they meet along the country roads. Whenever the Kingbird discovers a Red-head on a telephone pole he immediately tries to attack him. The woodpecker simply dodges around the pole and goes on about his business. The Kingbird takes his position on a wire and goes to catching insects, all the time keeping one eye on the woodpecker. Sooner or later the Red-head starts for another pole and the Kingbird gets the chance he has been



The nestlings at 12 days. Taken July 13, the day before they left the nest.

waiting for all the time. Both the Downy and Red-head tried this trick on the Great Crests and successfully worked it as long as they only had one of the parents to contend with, but came off second best when the other parent entered the game.

A Cowbird came into the nest tree while the female was in the nest, sneaked to the nest opening and looked in. What she saw was evidently not reassuring as she quickly backed away and flew off.

A squirrel crossing the glade was vigorously attacked and made to scamper for refuge to the nearest tree. Once safely there he turned and expressed his opinion of the Great Crest in shrill and violent language.

The most vicious performance which I witnessed was an attack on an immature Bronzed Grackle. He blundered into the nest tree while the male was sitting on one of the topmost branches, and had hardly settled himself when he was struck a violent blow from behind and sent sprawling to the ground. He lay there squawking for a few moments and then started to fly away. Hardly had he lifted himself from the ground when another blow on the back of the head caused him to turn a complete somersault into a small bush. He crawled out on the side opposite the nest and flew away without being further molested. The Great Crest used both beak and wings in the attack and the second blow took several feathers out of the grackle's head.

A TWO-YEAR NESTING RECORD IN LAKE COUNTY, ILL.

BY COLIN CAMPBELL SANBORN AND WALTER A. GOELITZ.

(Photographs by Walter A. Goelitz.)

Lake County lies on Lake Michigan in the north-east corner of Illinois. That part of Lake County in which the following records were made, extends along Lake Michigan from the Illinois-Winconsin state line at the north, to the Cook County line on the south, and west about ten miles to the Des Plaines River, and in the northern portion, farther west to the McHenry County line. This territory may be divided into five separate tracts: (1), the sand dunes and marshes of Beach in the the north-east corner; (2), the bluffs